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AUTHOR Burmeister, Marsha L.
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ABSTRACT

The problem addressed by the practicum was that the computer literacy of teachers and students varied from grade to grade and classroom to classroom, as did the amount of use of the computer. The goal of the practicum was that the participating teachers would improve their knowledge and skills and use the computer for professional and personal purposes. A computer literacy curriculum for grades K through 5 was developed; each level specified vocabulary, knowledge, and skills. Individual teacher inservices were held to enhance teacher computer literacy and to generate a project of the teacher's choice to reflect growth. A faculty workshop focusing on classrooms with access to one computer was also presented. The grade level specific computer literacy curriculum was adopted by the faculty at the school where the practicum was conducted. Analysis of the data from a survey of teachers following the practicum revealed that the participants in the individual inservice sessions were able to use the computer to produce a product and/or explore the use of the computer in a new way. Demonstration of the use of a RF modulator to enable use of a 25" television set as a monitor for whole class lessons led to the purchase and/or placement of this equipment for all the classrooms in the school. Appended materials include the questionnaire for a home computer survey, the grade level specific computer curriculum, the content outline for the optional workshop, inservice and practicum evaluation forms, the questionnaire for the computer survey for the faculty, and checklists and letters. (Contains 22 references.) (BBM)

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Development and Implementation of a Grade Level Specific Computer Literacy Curriculum Through Teacher Inservice in an Elementary School

by

Marsha L. Burmeister

Cluster 41

A Practicum I Report presented to the
Ed.D. Program in Early and Middle Childhood
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

Nova University

1992

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This practicum took place as described.

Verifier: Debbie Rees

Mrs. Debbie Rees
Principal
A. K. Suter Elementary School
Pensacola, Florida

March 16, 1992
Date

This practicum report was submitted by Marsha L. Burmeister under the direction of the adviser listed below. It was submitted to the Ed.D. Program in Early and Middle Childhood and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Nova University.

Approved:

April 29, 1992
Date of Final
Approval of Report

Georgianna Lowen
Georgianna Lowen, Ed.D.
Adviser

ABSTRACT

Development and Implementation of a Grade Level Specific Computer Literacy Curriculum Through Teacher Inservice in an Elementary School. Burmeister, Marsha L., 1992: Practicum Report, Nova University, Ed.D. Program in Early and Middle Childhood. Elementary Education/ Computer Literacy/ Curriculum/ Educational Technology/ Instruction/ Teacher Education/ Computer Peripherals

The problem addressed by the practicum was that the computer literacy of teachers and students varied from grade to grade and classroom to classroom, as did the amount of use of the computer. The goal of the practicum was that the teachers at the writer's school would improve their knowledge and skills as well as to use the computer for professional and personal purposes.

The writer developed a computer literacy curriculum for grades K through 5; each level specifies vocabulary, knowledge, and skills. Individual teacher inservices were held to enhance teacher computer literacy and to generate a project of the teacher's choice to reflect growth. The writer presented a faculty workshop focusing on classrooms with access to one computer.

The grade level specific computer literacy curriculum was adopted by the faculty at the writer's school. Analysis of the data revealed that the participants in the individual inservice sessions were able to use the computer to produce a product and/or explore use of the computer in a new way. Demonstration of the use of a RF modulator to enable use of a 25" television set as a monitor for whole class lessons led to the purchase and/or placement of this equipment for all classrooms in the writer's school.

*****

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CHAPTER 1

INTRODUCTION

Description of the Setting and Community

The work setting of the practicum was an elementary school serving students in grades kindergarten through grade 5. The projected enrollment for the 1991-92 school year was approximately 340 students in a southern city with a population of 58,165 (according to 1990 census data). The school has experienced local growth that parallels a state-wide trend. The anticipated actual student enrollment at the time of implementation of the practicum was 369 students.

The writer's school is a neighborhood school with a population from lower-middle to upper middle class living in close proximity to the school campus. Three buses transport students to and from school. Additionally, a significant number of students ride bicycles, walk, or are transported by automobile daily. Viewed as a school of choice for students living beyond the school's district lines, currently 34 transfer students attend the school.

The school is linked to the community in several ways. A day care center uses the facility on school days providing structured after-school activities to approximately 32 students until their pick-up by parents by 5:30 PM. Cub Scouts, Boy Scouts, and Brownie Girl Scouts meet at the school. The Parent Teacher Association (PTA) has consistently achieved 100 per cent

membership for the past several years and plays an important role in sponsorship of meetings, activities, and budget expenditures in classrooms. Additionally, partners in education have been "adopted." These community businesses and the PTA have been instrumental in funding equipment acquisitions including the computer hardware upon which the practicum will be based.

All teachers and students have access to a computer system which is defined as a computer, keyboard /and mouse, monitor, two drives, and printer (one kindergarten classroom has only one disk drive). The present school-wide ratio of students to computers is approximately 20:1. The classroom ratio of students to computer average is 26:1. One computer system is located in each general education classroom. Three computers reside in the school media center and one system is located in a portable classroom shared by the reading teacher, learning disabilities teacher and speech therapist. The most recent computer acquisition is an Apple Macintosh LC which was the result of a successful grant application by the school's Media Specialist. Classroom systems are Apple IIe or Apple IIGS with ImageWriter I or II printers. Because of system incompatibility, the Macintosh LC was not be included in the implementation of the practicum.

The Writer's Role and Responsibilities

The writer serves as one of 14 general education classroom teachers of the school. Educational leadership is provided by a certified principal. Other full-time school personnel include Media Specialist, Reading Teacher, Learning

Disabilities Teacher, Guidance Counselor, and Primary Resource Teacher (PRT). Increased enrollment qualified the school to have its first full-time Physical Education teacher in its history. Part-time teaching personnel serve the school in the areas of speech therapy, art, and music. The school has one secretary, two teacher aides, one data entry clerk, and three custodians. For the purpose of the practicum, the full time general education classroom teachers with personal access to a computer were the focus of the practicum.

The writer presently serves as a fifth grade general education classroom teacher. The implementation period of the practicum marked the nineteenth year of the writer's teaching experience in grades one, three, four and five. Present extra-curricular responsibilities include the coordination of school partnerships for the school as well as publication of the school newspaper. Previous responsibilities have included sponsorship of the student council. The writer has been responsible for creation of a 30' by 40' concrete map of the United States in the school courtyard as well as a map of the writer's state dug and poured in concrete and located at the school entrance. The writer willingly shares her talents and expertise throughout the building and the school plant reflects her handiwork.

The computer literacy of the writer was initiated during graduate course work approximately two years ago. The study of technology in schools necessitated use of the computer for an educational purpose. Although the initial experience with the computer was far from positive (a program disk was destroyed), the writer has since implemented computer use in both the work setting and at home. Present classroom use by the writer includes data management, word processing with mail merge and templates, graphics for notices and calendars, and student instruction for prescriptive drill and practice using game formats. The writer's home computer system is a

Macintosh LC with an Apple IIe card which is compatible with the classroom Apple IIe and IIGs systems. Word processing, data bases, and home finance are applications of the home computer in addition to creation of files at home for use at school.

The writer's qualifications for this role are a B.A. in elementary education and an M.A. in elementary education. She also has earned an M.Ed. in educational leadership and holds state certification in this area enabling her to be a candidate for the position of elementary school principal. She has been a recipient of monies from the local school district teacher mini-grant program for the past three years. One of her grants provided equipment to enable all classroom teachers to use a larger-screen television set as a computer monitor for whole-class activities. She was a member of the school team for application for accreditation and is a present member of the School Improvement Committee and the Onward To Excellence school team and a local Macintosh Computer User Group. Her education and experience have provided a good working knowledge of the role of the classroom teacher, professional and personal computer literacy, and insight into the application of computer literacy to enhance the educational program and teacher productivity. During the implementation phase of the practicum, she was chosen by her peers as the school's Teacher of the Year, the schoolbased level of a statewide teacher recognition program.

CHAPTER II

STUDY OF THE PROBLEM

Description of the Problem Situation

The problem addressed by the practicum was that the computer literacy of teachers and students varied from grade to grade and classroom to classroom, as did the amount of use of the computer. For some teachers, the computer was primarily used for student drill and practice. Other teachers relied upon the computer for completion of such tasks as word processing and grade averaging. Some teachers had considerable expertise and competence with the use of the computer, while others' knowledge and experience was limited or non-existent.

The problem of computer literacy was mirrored in the student population of the school. Some students have had more experience than others, are more familiar with the keyboard and uses of the computer, and have different levels of knowledge about computer procedures. Some students believed that they know what they are doing when using the computer but encountered difficulty that required teacher intervention. Teachers must therefore minimally match the students' literacy level in order to facilitate effective use of the computer, as well as understand potentials for difficulty in order to avoid problems such as destruction of software through improper care or use.

In brief, teachers and students, dependent upon grade level, needed to

know how to use the computer and to implement its use. The availability of a computer system in every classroom as well as an increasing body of software resources obtainable through the school media center necessitated consistent performance objectives and skills for all general education classroom teachers in the writer's school as well as specific expectations for each grade level.

Evidence of the Problem

Evidence of the problem was supported by observations, interviews, and a survey. The information about the problem was the result of the writer's involvement in the School Improvement Committee, informal discussions and interaction with staff, and the preparation of a survey instrument in conjunction with the study of the School Improvement Committee.

During meetings of the School Improvement Committee during the 1990-91 school year, discussions were observed concerning the destruction of software from the school media center. The media specialist reported that the rate of disk destruction during the school was unprecedented. The most commonly destroyed disks were of the "Magic Slate" (by Sunburst Communications) word processing program. Several copies of this user-friendly word processing program are owned by the school in 20 column, 40 column, and 80 column versions which appeal to teachers in all grade levels at the school. Because of the increase in the number of computer systems and teachers using them coupled with demand for the word processing program, all available copies were checked out including some back-up copies. Because of the copy-protection of the program and budget constraints, the school had only a certain number of copies with which to work. The media specialist cited improper disk care, lack of system configuration (one disk vs. two disk

systems), and inconsistent use of the "write protection" tabs for disk destruction, especially during formatting of blank disks. It was also pointed out that some programs, including Magic Slate, will not function fully when the "write protection" tab is affixed.

The minutes of the School Improvement Committee also reflected inconsistent expectations for students in terms of computer literacy. Some teachers expected the student to be very independent in use of the computer while others maintained a limited role for student interaction with the computer. The media specialist also reported that students who demonstrated a level of proficiency in the media center using the computer to obtain a "license" may not retain and demonstrate those skills upon return to the classroom.

Further evidence of the problem was that both the writer and the media specialist have been asked by colleagues for repeated assistance to solve computer and software use problems. Questions concerned advice about which program to use for a particular skill or task, how to share one computer with a classroom of children, and difficulties with configuration, formatting, file saving, and printing documents.

On two visual surveys of computers in place throughout the building, the media specialist reported that less than 50% were turned on. This factor was identified by the School Improvement Committee as a problem associated with the necessity to share computers with a classroom of students.

During informal interviews of faculty and students, several concerns about computers were expressed. Topics included the difficulty in sharing computers, a computer literacy curriculum, teacher computer literacy, and the instructional burden of the teacher.

Several teachers spoke of the difficulty in sharing one computer in a

classroom. Because of present enrollment, the ration of students to computer averages 26:1. Because several of the 14 classrooms have enrollments of 29 or 30, the actual time each student may have access to the computer is indeed more limited. Other concerns expressed by the faculty included the distraction factor of the presence of the computer in the room both in terms of sound and screen attraction, as well as the time factor. The structure of the school day requires whole group, small group, and individual instruction by the teacher; effective integration of computer use in the classroom requires more time.

Informal discussions also indicated confusion about what is to be taught and when it is to be taught. Some teachers said that they worked diligently with students to learn appropriate use of the keyboard for both hands while others expect students to be able to "find" the appropriate keys. Other discrepancies include teaching of computer terminology, expectations for use of the computer system, and care of equipment.

Teachers who use the computer know about the computer and therefore do more with the computer. Therefore, the teacher's level of computer literacy influences student computer use. Teachers with a limited background stated that they use the computer in limited ways that lie in the realm of their own understanding. In other classrooms, including that of the writer, the computer is used for a variety of purposes specifically to model that use to enhance student literacy.

The scope of the present elementary school curriculum has increased dramatically from past years. Today's teacher, in the state where the writer's school is located, must teach gun safety, AIDS education, dental health, sex education, and a myriad of topics that have legislated the curriculum into new areas of responsibility. There are a limited number of hours in a day, and the expanded curriculum coupled with accountability laws and goals for

achievement on standardized tests finds the computer as yet another instructional burden for an already full teaching day.

A survey of the faculty of the writer's school was completed in February of 1991 (Appendix K). Twelve of the 13 general education teachers responded to the survey. Results of the survey were divided into three parts for tabulation. Table I addressed the computer literacy topics taught or reviewed with students by the responding teachers. The topics were the result of a list generated cooperatively between the writer and the school media specialist.

Table 1

Computer Literacy Topics Taught or Reviewed With Students

	Yes	No
setting configuration	1	11
booting system	5	7
loading program	7	5
keyboard arrangement	9	3
command key use	6	6
printer use	4	8
to turn on computer	9	3
to turn off computer	9	3
to turn off printer	4	8
prepare printer to print	3	9
word processing	4	8
definitions of computer terminology	0	12
identification of system components	7	5
formatting a blank disk	1	11
making a back-up copy of a disk	1	11
identifying functions of system parts	2	10
care of equipment	9	3
care of software	8	4

Note: n = 12 teachers responding to survey

Evidence of inconsistency included the number of teachers teaching

"booting of the system' (5) and those teaching "to turn on the computer (9). According to the survey, no teachers are teaching computer terminology which included examples of "boot, peripherals, hardware, CRT." The split of teachers providing instruction of "command key use" is split 50/50. Other surveyed areas of concern include that one teacher is teaching system configuration, formatting a blank disk, and making a back-up copy of a disk while two teachers are teaching identification of the functions of system parts.

The second part of the survey is presented in Table 2 and addresses the computer skills and abilities of classroom teachers. Evidence of inconsistency included the indication that two of the 12 teachers responding to the survey know how to set the configuration of the system. Eight know how to "boot the system" but all respondents know how to turn on the computer. Five teachers indicated knowledge of computer terminology, half of the surveyed group indicated that they can identify system components, and 4 teachers of the dozen surveyed indicated that they can identify the functions of the parts of a computer system. Although 11 faculty members indicated knowledge of care equipment 10 teachers stated ability to care for software, one evidence of the problem to be explored by the practicum is that of disk destruction.

Table 2

Computer Skills and Abilities of Classroom Teachers

Skill	Yes	No
setting configuration	2	10
booting system	8	4
loading program	11	1
keyboard arrangement	11	1
command key use	11	1
printer use	8	4
to turn on computer	12	0
to turn off computer	12	0
to turn off printer	9	3
prepare printer to print	7	5
word processing	8	4
definitions of computer terminology	5	7
identification of system components	6	6
formatting a blank disk	4	8
making a back-up copy of a disk	4	8
identifying functions of system parts	4	8
care of equipment	11	1
care of software	10	2

Note: n = 12 teacher responses to survey

The third portion of the survey of teachers had the topic of classroom computer use. Teachers were asked to indicate daily use of the computer and its role in the classroom.

Table 3

Classroom Computer Use

	Yes	No
computer turned on every day	7	5
used for word processing	8	4
used for data management	1	11
used for data base	1	11
used for drill/ practice: math	11	1
used for drill/ practice: spelling	10	2
used for drill/ practice: other subjects	11	1
used for simulations	2	10
used for games	10	2

Note: n = 12 teachers responding to survey

The writer noted that 7 out of 12 of the computers located in classrooms were turned on every day, according to the survey. Computer use throughout the writer's school was primarily for drill/ practice in the curriculum content areas of math, spelling, and other subjects. Use of the computer for games also figured prominently in computer use at the time of the survey. Two areas were used by 1 out of 12 faculty members: data management and as a data base. It was the writer's belief that these areas represented important areas for teacher literacy to enhance education and teacher productivity.

Causative Analysis

It is the writer's belief that there were 5 causes for the problem. The causes included teacher education, lack of a specific computer literacy curriculum, and teacher convenience, knowledge, and frustration.

Instruction of teachers in the use of the computer has not been uniform

and each teacher is responsible for the delivery of computer literacy in the classroom. The writer's school consists of a highly motivated and professional faculty with many years of experience in the self-contained elementary school classroom. For this faculty, the arrival and access to computers came considerably after their educational course work in teacher preparation. The computer literacy of this fine group of teachers has primarily been the result of self-initiated participation in summer in service workshops or individual hands-on experimentation. Because each teacher has a personal level of expertise developed individually over time, there is considerable variation on knowledge and application of skills related to computer literacy.

Although minimum student performance standards have been adopted by the Department of Education for the writer's state, this school had not adopted a curriculum defining computer literacy in terms of what is to be introduced, expected, and expanded at each grade level. The instructional materials provided for the school from the Department of Education were designed for non-grade-level-specific incorporation into the existing curriculum. Materials included objectives, suggested teaching activities, and black line masters; sequencing information and grade level for the materials are not indicated and were left to the discretion of the teacher. Although this procedure allowed for a wide interpretation and application of a vast body of skills and information, the teacher was left without specific direction. The scope of the computer skills was also considerable; skills include identification and interpretation of error messages, formatting and creating back-up disks, and the process and language of programming.

Unfortunately, but realistically given the above background and curricular support factors, it is easier to leave the computer off than to deal with issues of literacy and classroom management that are associated with use

of the computer. To share one computer with thirty children and meet all the curricular needs of the general education classroom within present time constraints is very difficult.

Furthermore, those who know more, do more; the reverse is also true. In the writer's case, as literacy has increased, so has the role of the computer. Now used for a myriad of tasks, the writer finds it a rare day when the computer at home has not been used; the classroom computer has become a standard tool. But the writer also experiences daily those teachers who do not have the experience and expertise to use the computer to increase their own productivity as well as make the computer an integral part of the classroom.

And the use of the computer can be a very frustrating experience. Errors can occur, students and teachers may input improper commands that interfere with the use of the programs, and glitches can occur at any time during use or an attempt to use the printer. It takes experience to trouble shoot and complete whatever task is at hand. Part of the process is knowledge of the program and the equipment which is translated into confidence and professional expertise.

Review of the Literature

Review of the literature gives evidence of the importance of computer literacy, a definition of computer literacy, and categories of knowledge delineating areas of instruction. Recognizing the importance of competence in use of computers, computer literacy can be defined in several ways and divided into classes of information upon which to base teaching.

The necessity of computer literacy to be provided to students for technological competence is viewed as essential preparation for students' survival in society. All students must have the opportunity to master use of computers that are appropriate to the developmental level of the learner as well as matching instructional needs and student motivation. Computers may be used for word processing, to provide learning opportunities, assist with record-keeping of student progress, and to assist in creation of classroom materials. (Alaska State Department of Education, 1985).

Computer literacy has been defined as "a concept of the capabilities, limitations, applications, and effects of computers, including both an awareness level and a functional working knowledge." (Still, J. H., 1985, p. 44).This is a tall order and has been the inspiration for curriculum guides across the country.

The focus of curriculum development (usually represented by guides containing minimum performance standards, learning outcomes, or behavioral objectives) can be organized by topics (Alaska State Department of Education, 1985), categories (Eriksen, 1989), knowledge areas (Berry, Booker, Hosp, Miller, Phillips, Roach, Sem, Wade, & Wakeland, 1983), and strands of literacy (Hunter, 1983). Topics used in the Alaska curriculum guide include

operation, application, and societal role of the computer as well as use of the computer for development of solution strategies. Still (1985) included computer awareness and interaction as well as logical thinking objectives.

Computer literacy can also be organized into categories of instruction (Eriksen, 1989). Computers themselves can be the subject of instruction. Programming skills, using the language understood by computers, is another category of instruction in computer science. Productivity is an area of instruction whereby the computer is used to generate a specific product, including word processed documents, using a data base to acquire information, or creation or access to spreadsheets to product calculations and related reports. Social issues related to use of computers is a literacy topic, as well as the use of the computer as an instructional tool.

Computer literacy may also be organized for the purposes of curriculum according to knowledge areas. Such areas may include meaning and use of computer terminology, historical background of the computer, consideration of the computer as a tool, how to communicate with a computer, consideration of the impact of the computer upon society, and computer technology in such areas as manufacturing itentified by Berry, J. et al. (1983).

Hunter (1983) organized a computer literacy curriculum into a sequence of objectives. Her strands of literacy included procedures for using the computer, utilization of programs, basic computer conceptions, technological application, societal impact, and skills related to programming the computer for specific tasks. As with other contributors to the literature, Hunter cites objectives, materials, management, and instructional needs of the teacher.

The literature related to the topic of computer literature remains in relative infancy. A myriad of references date from 1978 about computer

literacy when the computer made its initial entrance into classrooms. These articles may be grouped into categories focusing on specificity, global, planned, evolutionary, or individual needs whereas educational goals and objectives is an alternative focus on the literacy issue (Kay, 1989). "Specificity" theorists (Kay, 1989, p. 35) focus on one part or topic of computer literacy that they think is more important than all the others, such as programming or terminology. "Global" proponents (Kay, 1989, p. 35) base their computer instruction curriculum upon some of every topic. Advocates of a planned literacy program stress the necessity of figuring out what to teach and when to teach it. Theorists in the area of computer literacy from the evolutionary camp see the curriculum as continually reflecting changes in hardware and software. Kay (1989) also cites authors that base their concept of computer literacy as a matter of personal need. There is so much to learn in the area of computer literacy that what is to be learned becomes a matter of what is important to each person.

Once one has decided upon a definition of computer literacy, other issues remain to be resolved. These issues include measuring literacy, equation of computer literacy to other skills, and the role of computer literacy concepts. Furthermore, implementation of computer literacy can be a struggle for schools; an alternative method for implementing literacy may be acquired merely by using them.

The domains and components of computer literacy programs are much debated; a measure of computer literacy may be the ability to use computers intelligently (Calfee, 1985). Definition of what constitutes a literate person may change. Previously, the book was the primary means of instruction. Advent of the use of the computer, according to Calfee (1985) may be seen as a new tool for the literate person as the computer facilitates moving beyond

traditional models of reading and writing which have heretofore indicated literacy. Calfee addresses the significance of the computer in terms of both what it can do and how it does it in terms of a computer literacy curriculum. He states that it boils down to an ability to deal with these machines in an intelligent manner. Calfee's definition of literacy deletes the 'computer' designation and states that

> It is likely that in a decade or two, literacy will no longer imply book literate, but will refer to the individual who is skilled and knowledgeable in the formal technologies of handling language, whether spoken or written, whether on paper or on monitor (Calfee, 1985, p. 13).

Calfee sees the computer literacy curriculum dealing with five areas: use of the computer to facilitate learning, to facilitate solving of problems, something that can serve as something to learn about, a device that may amuse, and a component of the learner's potential.

To continually link computer literacy skills to other instructional areas, Longstreet & Sorant (1985) identify use of the computer as an extension of student abilities. Their discussion bases the concept of computer literacy upon the environment of the learner in terms of the technological marketplace and the currency of the hardware and software used for instruction. Citing the vast increase in the amount of knowledge we now have, computer use can facilitate storage, retrieval, and manipulation of this data to enable students to increase comprehension of subject matter. Longstreet & Sorant effectively speak to "mastery of an operating system [as] a requirement for universal computer literacy" (p. 120). They also cite "flexibility and adaptability as key characteristics of the computer literate" (p. 120).

Computer literacy issues also include the role of programming, choice of objectives,skills, and "information literacy" (Levin, 1983, p. 27). Levin deals with the programming issue and identifies it as a matter of choice and

emphasis dependent upon student expectations. Learning objectives are also a matter of choice and reflect commonly held areas of topics for computer literacy in terms of basic goals. Levin's discussion of the MECC objectives are worthy of consideration here because the writer's school is a participant in a contract enabling faculty to obtain legal copies of MECC programs included in agreement for use in their classrooms. Levin states (p. 26) that the MECC computer literacy objectives include "(1) hardware, (2) programming and algorithms, (3) software and data processing, (4) applications, (5) impact, and (6) attitudes, values, and motivation."

But as computer literacy becomes more common throughout the present period of relative infancy in computer literacy/ education in the country, schools face a genuine struggle to deal with computer literacy in relation to such issues as graduation requirements, financial support, equity and teacher training (Pipho, 1985). Computer applications are increasing including remedial instruction and drill and practice as well as document production using word processing programs. Additional issues cited by Pipho (1985) include "acclimation, familiarity, history, basic understanding, awareness, operation, and programming" (p. 100).

A more subtle form of computer literacy may take place by simply using the machines; Turkle (1986) sees development of literacy through a look inward at oneself. Turkle speaks to personal experience as a very viable basis for enhancement of computer literacy. For teachers, she sees the outcome of computer literacy curriculums as a result of direct experience of teachers. Turkle sees the interactive experiences as setting the stage for acquisition of values in the use of the computer. Computers should therefore be given to teachers first in order to enable them to experience this tool and consequently grow before being expected to implement a computer literacy curriculum.

The writer's state has adopted computer literacy objectives which are not grade level specific by Baumbach, Boulware, Hoover, Jones, Parham, Valdes, & Witter (1987). Included in a notebook with instructional materials, the standards were provided to address minimal competencies to enable effective interaction with computers. Forty-four skills are identified with sequencing information that is not indicated by grade level. The implementation of these skills is left to the discretion of each teacher, school, or district. The standards are as follows:

A. The student will operate a computer for an instructional purpose by loading and running programs.
B. The student will understand the function of the basic parts of a computer.
C. The student will understand the role and function of software and languages in computer technology.
D. The student will recognize the impact of computer technology in society and the need for its ethical use.
E. The student will understand the capabilities and applications of various computers and computer systems.
F. The student will understand the process of programming.

Because the above standards have been established and adopted by the writer's state, these minimum performance standards served as a significant basis for the development of a grade-level specific computer literacy curriculum component of the practicum, but were tempered by appropriate application to specific grade levels.

CHAPTER III

ANTICIPATED OUTCOMES AND EVALUATION INSTRUMENTS

Goals and Expectations

The following goal and expected outcomes were projected for this practicum. The goal of the practicum was that the teachers at the writer's school will know how to use the computer. The faculty members at the writer's school have been very supportive of all efforts to realize the goal of "one computer system in every classroom." The staff has moved beyond the days when computers were on carts and rolled between classrooms on a rotation basis. Because each teacher now has access to the computer without sharing on a grade-level basis, it was time to move to the next step. All teachers needed to know how to use the computer at least to the extent that was required to implement specific grade-level curriculum objectives in the area of computer literacy. The writer visualized the computer as a crucial tool in enhancing the current educational program as well as a part of the current school restructuring movement and strategies for school improvement programs to increase student achievement and teacher productivity.

Expected Outcomes

The following objectives were expected outcomes for this practicum. These conditions were expected to prevail for the teachers during implementation of the practicum and were designed to meet the writer's goal of facilitating solution strategies.

1. The School Improvement Committee will adopt a grade-level specific computer literacy curriculum with performance objectives. This committee was originally formed three years ago and charged with the responsibility of compilation of a report to enable the school to obtain accreditation through the Southern Association of Colleges and Schools (SACS) during the 1988-89 school year. After completion of this task, the group focused on school-based improvements which were based on the response to the SACS report as well as faculty-generated concerns. The issue of computer literacy in the school was a subject discussed by the group during the 1991-91 school year. This committee became the school team for participation in the school district's "Onward To Excellence" (OTE) school improvement plan. OTE is part of compliance with the state accountability law. The writer continued her membership on this committee and the adoption of the grade-level specific computer literacy curriculum by this group was seen by the writer as a necessary outcome for effective implementation of the practicum.

2. Teachers will have access to a grade-level appropriate computer literacy curriculum. This curriculum will include specific skills and student use expectations. Once approved by the School Improvement Committee, all teachers must have a copy of a guide explaining what is to be taught, when it is to be taught, and when it may be presumed as mastered.

3. Teachers will experience hands-on activities using the computer to enable them to teach the computer literacy curriculum. This faculty is a high-performing group of educators. The writer has observed their willingness to learn, to participate in inservice workshops and to attend meetings. The writer wishes to facilitate time for teachers to use the computer, rather than attend meetings about using computers.

4. Teachers will successfully use the computer for a project of their choice. It is the writer's goal that each of the 14 teachers in the writer's school will use the computer in a way that demonstrates their present use of technology in their classroom. Many uses of the computer by teachers are presently in use, depending upon the level of literacy of the classroom teacher. Word processing, grade reporting, use of a graphics program for signs or banners, data management, and desktop publishing are several options beyond student use for drill and practice of various subject areas.

5. Computer skills and abilities of teachers will increase. It is the desired outcome of the writer that teachers will move beyond their present level of literacy to develop new skills to enhance the role of the computer in their classroom either in terms of use by students or in improving teacher productivity. Word processing, grade reporting, use of graphics for signs, stationery, letterhead, or banners, data management, and desktop publishing are options that the writer wishes to offer to staff members. These applications of computer skills are supported by software currently available through the school media center as well as a MECC contract which makes licensed copies of software available to teachers on the district level.

Measurement of Outcomes

The measurement of outcomes of the practicum was to encompass several instruments and strategies. Each goal of the practicum had a specific measurement tool and a standard of achievement.

The outcome of adoption of a grade-level specific computer literacy curriculum with performance objectives was to be evaluated by making an examination of the minutes of the School Improvement Committee. The minutes examined were to include the months of September, 1991, through January, 1992. The standard of achievement was that the minutes of this committee will reflect the adoption of a grade-level specific computer literacy curriculum with performance objectives.

The outcome that teachers will have access to a grade-level appropriate computer literacy curriculum including skills and student use expectations was to be evaluated by using a checklist. The checklist included the grade levels of all teachers participating in the implementation of the practicum. They were to signify by initialing the checklist that they received a copy of the curriculum. It was expected that 14 of 14 of the affected teachers would acknowledge receipt of the adopted grade-level curriculum and objectives (Appendix C). This instrument was chosen due to the small size of the staff that participated in the practicum and the ease with which records were able to be kept through this part of the implementation process.

The outcome that teachers will experience hands-on activities using the computer was to be measured using an evaluation form following completion of an optional computer literacy enhancement workshop. The optional enhancement workshop would provide specific models and examples for teachers involved in the implementation phase of the practicum. The topic of

the workshop (to be held on an end-of-semester teacher work day), would include the role of the computer in a 'one computer' classroom as well as topics to foster teacher productivity using the computer. The standard of achievement was that 10 of 14 teachers would participate in the workshop and complete the evaluation form as evidence of participation. (Appendix F and Appendix G).

Using the computer to produce a teacher-chosen project was another outcome. Teachers were to generate a word processed document, a grade book report, a card/sign/banner using graphics, a report from a teacher-made data base, or other use of applicable software. Teachers were to choose the program that they wished to use and the writer would provide direction as necessary. The standard of achievement was to be measured using a checklist (Appendix E) completion of which would indicate that a product was produced by the teacher, and a statement about how this product was useful to the teacher was to be included.

An important outcome in terms of participants in the implementation of the practicum was the growth of computer literacy of the teachers at the writer's school. The goal of an increase in computer skills and abilities of teachers was to be evaluated by submission of a computer-produced product that the participating teacher identified as a "new" application for that teacher. The standard of achievement was that the teachers would indicate an increase in computer skills and abilities from the baseline data in Table 2: Fourteen of 14 teachers were expected to respond 'yes' to the portion of the initial computer survey (Appendix I) in the following areas: booting system, loading program, printer use, turning off printer, preparation of printer to print, word processing, and care of equipment and software.

CHAPTER IV

SOLUTION STRATEGY

Discussion and Evaluation of Possible Solutions

The problem to be addressed by the practicum was that computer literacy of teachers and students varied from grade to grade and classroom to classroom, as did the amount of use of the computer. Building upon the information presented in the Review of the Literature, several components of a solution strategy were identified. The literature spoke to solution strategies including development, implementation, and integration of computer literacy into the curriculum.

Brady-Ciampa (1983) identifies an implementation strategy which includes identification of specific goals, objectives, and an implementation plan for action. This author states that plans must include contingencies and specific definitions of parameters including strategies for implementation and evaluation of the curriculum. Evaluation includes student input, concepts taught, and an instructor evaluation of the course within a societal context.

Meister (1984) speaks to solution strategies that address implementation of computer literacy as both an educational novelty and as a specific technology. Meister views successful implementation as a result of meeting needs dependent upon state, regional, district, and local support networks. Meister sees the solution to the computer literacy problem as a result of attention to teacher education as well as continuing definition and

fostering of the implementation of a computer literacy curriculum.

Another strategy is addressed by Ferguson (1985) whose solution to the problems associated with computer literacy are met by a checklist and other materials. His program includes a checklist of questions based on other research, as well as discussing the crucial role of the Board of Education and related financial resources. These resources, coupled with teacher inservice formulate a plan for implementing a computer literacy program whereby students demonstrate specific competencies based on skills introduced, expanded, and reinforced in a multi-grade level approach.

The computer assisted instruction program discussed by Baggett (1984) deals with various solution strategies. One strategy is to provide information about computer-assisted instruction (CAI) to all classrooms while the author developed a prototypical CAI experience for students in second grade as well as define the experience for the community.

The Hawaii State Department of Education (1984) designed an "Exploratory Computer Literacy Curriculum Guide K-6 Resource Unit." This guide was designed to integrate teacher-generated materials into computer literacy. A school-based computer task force facilitated management procedures for use of computer labs as well as sample survey forms. Topics included student evaluation, performance expectations, curriculum areas, prior knowledge needs as well as teacher planning, preparation, and management skills. Development of the computer literacy curriculum was structured to identify "where we are, where we want to go, how to get there, and what has been accomplished" (Hawaii Department of Education, 1984, page 8). The writer identifies strongly with this solution strategy from assessment to setting of goals, development of a plan of action and evaluation.

Solomon (1990) identifies fifteen ways to enhance implementation of

classroom technology. Of his suggestions, two are viewed by the writer as most apropos to the school. First, the author cites an "equation for learning to use computers: One person, plus another person, plus a computer equals success" (R. Gold in Solomon, 1990, p. 42). The second way to facilitate implementation of computer technology is to place teachers in the roles of learner, researcher, expert, and eventual leader. The writer looked to the implementation portion of the practicum to cast teachers in these roles.

Mowe (1990) provides a guide titled "Evaluating Computer Integration in the Elementary School" which includes rationale, procedures, and questionnaires. Mowe's work is another voice in the literature speaking to the necessity of a curriculum with a plan that knows what equipment is available, goals for its use, and a structure for evaluation of progress.

Brooks asks the ultimate question in terms of the computer literacy curriculum: "Is your classroom computer working hard, or hardly working?" (Brooks, 1990, p. 45). The writer hopes that following the implementation period of the practicum, teachers in the school will be able to answer this question more positively. Brooks attributes success in utilizing the classroom computer with on-going activities, instructional strategies, and management of both time and children in terms of long-range goals.

Description of Selected Solutions

The implementation of the practicum utilized several strategies selected as solutions to the problem that teachers and students, dependent upon grade level, need to know how to use the computer and to implement its use. Prior to implementation, background information was to be gathered about the

availability of computers in the homes of students attending the writer's school. This information was to be gathered by a survey and attempted to provide some data about the entry level literacy of students attending the school in the context of the home computer system.

An attempt was to be made to examine computer literacy curriculums in place in other school systems in regional proximity to the writer's school. It was hoped that these documents would yield specific goals, objectives, and skills for grade levels, and perhaps, shed light upon ways to implement the State Minimum Performance Standards in Mathematics.

A computer literacy curriculum was to be developed for presentation to the School Improvement Committee (SIC) and, with this body's approval, was to be adopted by the building faculty at the writer's school. The SIC group is a selected group of teachers also charged with the school's participation in the "Onward To Excellence" (OTE) program to implement mandatory school accountability legislated in the writer's state.

One individual workshop for each teacher (n=13) was to provide an opportunity for hands-on teacher experience with specific elements of the curriculum at each grade level. These individual sessions were to orient each teacher to the specific objectives for the particular grade level as well as provide time for teachers to use the computer with guidance. Word processing software was to be utilized. Programs to be used included but were not limited to MECC Writer (publisher: MECC), AppleWorks (Claris Publications), Magic Slate (by Sunburst Communications), and The Children's Writing and Publishing Center (published by The Learning Company). A graphics program (Print Shop by Broderbund Software) and a grade book program (Grade Manager by MECC) were also to be available. The writer worked with teachers to enable them to produce a specific, useful product of

their choice using the computer. Because of the inservice participation history of this faculty as well as the high level of this group of teachers in terms of graduate-level course work and personal performance standards, the use of non-structured individual learning opportunities was seen by the writer as the most viable means for facilitating change.

A "Computer Tip of the Week" was also to be given during the implementation period. Because this faculty meets every Wednesday for faculty meetings or for the purpose of school improvement, use of this time for enhancement of staff computer literacy was seen as a viable means of sharing information. Agendas of weekly faculty meetings held during the implementation period of the practicum were to indicate computer tips to be shared.

Teacher management plans for computer use in the classroom were to be obtained from faculty and a handout prepared outlining options and alternatives. Evaluation was to be via checklist (Appendix D), and the writer's goal was that 14 of the 14 faculty members would have a computer management plan posted in their classroom following the implementation period of the practicum.

An optional workshop for teachers wishing to enhance their overall computer literacy was to be offered. Held during the semester workdays for teachers, the writer anticipated that 10 of the 14 teachers would participate. This workshop was to be presented by the writer and was to focus on using the computer in classrooms with one computer. Topics presented were to be based upon concepts presented in "Great Teaching in the One Computer Classroom" (Tom Snyder Productions, 1991). Because of the size of the school in terms of numbers of students and utilization of the physical plant, this workshop unit was identified by the writer as an extremely appropriate

inservice topic for a school without the potential of instructional space to be allocated for a computer lab. (Appendix F).

Report of Action Taken

Prior to implementation, the proposal was shared with the building principal and the media specialist for their approval. The calendar plan for implementation was shared and checked to match scheduled meeting opportunities of the teachers involved in implementing the goals of the practicum. A search for and an examination of grade-level specific computer curriculums was made via requests from regional districts in the writer's state of residence. Following this research, materials necessary for implementation were prepared. These included the survey about computer use in the home (Appendix A), the grade-level specific curriculum (Appendix B), and an evaluation questionnaire for the faculty to complete following the implementation period (Appendix I).

The projected calendar plan for implementation spanned approval of the proposal through the first semester of the 1991-92 school year. During the implementation phase of the practicum, development of a grade-level specific computer literacy curriculum was to be adopted by the writer's school faculty, individual teacher workshops were to be held, computer tips shared, and an optional computer literacy enhancement w[illegible]shop offered.

Specifically, from the date of the approval of the practicum proposal to October 9, 1991, the grade-level specific computer literacy curriculum was to be developed for presentation to the School Improvement Committee. This body was to examine and evaluate the goals and objectives and work to revise the document for acceptability to the school faculty.

Following revisions as necessary, the curriculum was to be presented to the faculty during a regularly scheduled staff meeting, tentatively scheduled for November 6, 1991. Adoption of the curriculum at this time was to enable implementation of the practicum to proceed to the next step.

Following faculty approval, individual workshop sessions were to be held with each teacher with the purpose of assisting the teacher with production of a meaningful product utilizing the computer. All individual teacher workshop sessions were scheduled for completion prior to January 6, 1992.

The optional computer literacy enhancement workshop was to be offered on January 7, 1992. This day was scheduled as a teacher work day without student attendance. The Snyder (1991) materials were to be utilized to facilitate utilization of the computer in 'one computer' classrooms which is the basis of reality for the entire practicum at the writer's school. This inservice program was to be evaluated by participating faculty.

Following implementation, an evaluation of the implementation period was to be made. A survey instrument was to be used to assess the implementation of the practicum (Appendix I). Completion of the report of the practicum was anticipated by February 1, 1992 or shortly thereafter.

The first action taken before work to facilitate practicum outcomes was the distribution of a home computer survey (Appendix A). This survey was distributed Thursday, October 17, 1991. Duplicated on yellow paper to differentiate it from other regular school distributions, a cover letter was attached by the writer's supervisor (Appendix L). The total number of surveys sent home with students that take home messages regularly (on Monday & Friday weekly) for their family numbered 290. The number of surveys returned was 124, or a yeild of 42.27% return rate. Of the survey respondents, five were discarded as invalid because of their answer to

question #1 about having a computer at home. Although a "yes/no" answer was deemed appropriate by the writer, five families had answers that indicated that the computer was broken, changed the word 'home' to 'office' or indicated that the computer was an Atari or a Franklin Speller. The focus of the writer's survey was computers with compatibility of Apple or IBM, as identified in question 2 on the survey. In response to the question, "Do you have a computer at home" 49 of 119 respondents answered 'yes.' Although this represents 41% of the respondents to the survey, this figure is really only 16% of the potential responses at the writer's school. The lack of response to this survey was a major disappointment to the writer because of the school's desire to link the home and the school in terms of instruction in technology. Therefore, the results presented in the following tables have limited validity due to the response rate of the school population as defined by families.

Several kinds of computers are owned by the 49 families with home computers. These include seven models of Apple computers, 16 different types of IBM or compatible models, and ten Tandy computers.

Two survey questions were directed toward determining how the computer is used in the home, first by adults, and secondly, by children. The data is summarized by the following table.

Table 4

Uses of the Home Computer by Adults and Children

Use of Computer	by Adults	by Children
playing games	30	44
educational drill	16	33
graphics	20	19
home Finance	25	0
word processing	45	23
basic programming	16	5
data base	26	6
other uses _____	14	2

Note: n=119 parents responding to survey

Adult respondents in dicated that "other" uses of the computer included making cards and banners, use of a modem and bulletin board services as well as accounting purposes, completion of work, and use of spreadsheets. Uses by children in the "other" category included the use of the Print Shop program by Broderbund. The survey results found that 47 respondents with home computers allow the children to use the computer; the number of children using home computers was 87.

A total of 37 adult survey respondents indicated that their children do not have a home computer but do have access to a computer through the parent's workplace. Of these computers, 14 were identified as IBM compatible; 4 are Apple Computers. Nineteen parents stated that their children have a home computer and also can use the computer via the parent's workplace. Of these computers, 16 are IBM compatible; 3 are Apple Computers.

Several attempts were made to examine the computer literacy curriculums in place in other school systems in regional proximity to the

writer's school. Although several calls were made to various officials and departments in each of the two neighboring counties, a computer literacy curriculum was not found. One district person believed that one existed but four separate contacts with this person did not yield results. One teacher at the writer's school responded to the presentation of the grade level specific curriculum developed for this practicum as something already in existence in another district of which she was a part. Again, repeated pursuit for documentation proved fruitless. The writer therefore, returned to the literature and specifically the Florida Minimum Performance Standards in Computer Literacy (Baumbach, et at, 1987). The writer included sequential references to all prior concepts at each level to insure continuity of strands (Hunter, 1983) and topics (Alaska State Department of Education, 1985) and knowledge areas (Berry and Others, 1983).

A computer literacy curriculum was developed by the writer (Appendix B). The writer chose to organize the curriculum for each grade level in terms of three areas: vocabulary, skills, and knowledge. The content was primarily based upon the state's computer literacy performance standards (Baumbach, et. al., 1987). Each concept area was designed to build upon the previous grade level. The vocabulary section includes a repeat of all terms from preceding grade levels. These were included to assist the teacher in being able to test for prior knowledge as well as to build upon prior learning. The skills section for each grade level is designed to provide the teacher with specific testable outcomes for instruction. The knowledge component of the curriculum is directed toward the education of the student in terms of the general technology.

Presentation to the School Improvement Committee (SIC) was a planned action during the implementation of the practicum. However, at the time for

presentation, the SIC had been eliminated and the other committee for approval, the Onward to Excellence team (OTE) had been significantly reduced due to funding reductions in the writer's state. The work of these committees was turned over to the faculty to act as a committee of the whole. Therefore, the computer literacy curriculum (Appendix B) was presented to the faculty during a meeting designated for "school improvement." Copies were provided to twelve attending teachers and all other staff persons; two copies were later individually shared with absent members. Each section of the curriculum was orally presented and briefly discussed including rationale. The staff was directed to share changes or comments with the writer before the next faculty meeting. If no changes were suggested the document would stand adopted as read. The writer was advised by the media specialist to add the word "popular" to the discussion regarding kinds of computers including IBM and Apple. This change was made at the fourth grade level for the sake of clarity. Other staff members indicated approval of the content and organization of the curriculum concepts. The document was therefore considered approved and a revised copy was given to each teacher, as documented by a checklist (Appendix C).

One individual workshop for each teacher (n=13) was provided for an opportunity for hands-on teacher experience with specific elements of the curriculum at each grade level. The individual sessions were held to first orient each teacher to the specific objectives for the particular grade level and second, to provide time for teachers to use the computer with guidance to enhance their computer literacy. These sessions were handled in various ways. Some were the direct result of specific questions to the writer, such as "Please help me with the printer. It won't work." Another teacher wanted to learn to use the gradebook program that the writer shared during informal

grade level planning sessions. For another teacher, the writer was able to assist in a more efficient way of producing and saving homework assignments using a word processing program. Two teachers were assisted as a part of their professional growth plan, an outcome from the professional evaluation process.

A "Computer Tip of the Week" was planned during the implementation period. Although weekly tips were planned, sharing turned out at best to be rather sporadic due to the change in weekly faculty meetings to that of School Improvement/ Onward to Excellence meetings. "Tips" shared did include the use of the "write protection tab," the use of a "notcher" to access the reverse side of double-sided disks and the necessity of NEVER removing or otherwise interfering with disk use while the red indicator light is on for any disk drive. Other tips were part of the faculty adoption of the grade level specific computer literacy curriculum which intentionally did not provide instruction in switching computer programs as a component of instruction at any grade level. This tip and instructional policy was seen as a part of the solution strategy in relation to the disk destruction and an indicator of a computer literacy problem in the writer's school.

During the current budget crisis in funding to education, the writer identified the cost of new printer ribbons as a constraint to the use of the printer during the implementation period of the practicum. So, although not in the original plan, the writer was instrumental in the selection and purchase of a re-inking device for Imagewriter ribbons. This piece of equipment, purchased with school funds, has become a part of media center materials. During a faculty meeting, a printer ribbon without the cover was shared with the staff for educational purposes; the miles of fabric convolutedly stored fabric that are stored in the ribbon cartridge were visible. The savings from

recycling ribbons and the freedom to print documents without consumption of a ribbon were viewed by the writer as unexpected outcomes of the practicum which enhanced use of the printers throughout the school.

Teacher management plans for computer use in the classroom were to be obtained from faculty and a handout prepared outlining options and alternatives. This data was collected as planned (Appendix M); the writer's objective that a plan for computer use by students be posted in each classroom to be measured by checklist (Appendix D) was abandoned as the writer realized that the implementation of teacher computer literacy and the use of one computer per classroom would not be facilitated by relegating computer use to specific students and/or teacher use via a posted management system but rather would be enhanced by the group-use activities modeled during the "One Computer Classroom Workshop.".

The optional workshop for teachers wishing to enhance their overall computer literacy was offered as planned. Held during the semester workdays for teachers, the writer made a presentation entitled "The One Computer Classroom." This presentation focused upon using one computer in a classroom for 25-30 students. Based on information by Tom Snyder Productions (1991), the writer published and distributed a handout(Appendix N) based on a content outline (Appendix F). Evaluation of the survey was made using an attendance checklist (Appendix G) and an inservice evaluation form (Appendix H). The writer's workshop presentation was attended by all 13 classroom teachers and seven other faculty members which included the principal, guidance counselor, reading specialist, media specialist, speech therapist, and specific learning disabilities teacher.

Six participants included comments. One teacher indicated that she appreciated "sharing of how we could use the computer for the entire class as a

teaching tool." Another participant indicated that "this presentation had more impact and long term influence than any hour we've spent in years." A monthly meeting to share and review ideas and new concepts was suggested by two teachers. And one faculty member suggested spending an afternoon as a group previewing different programs using the RF modulator as demonstrated during the presentation.

In regard to calendar, the writer's planned implementation period (approval in October, through the first semester of the 1991-92 school year) was a reasonable undertaking. Individual inservice opportunities to work with faculty were impacted by a tightly-packed December calendar. Therefore, although the writer's inservice presentation took place as initially placed on the calendar on January 7, 1992, individual inservice opportunities with faculty extended beyond the planned end of the first semester of the current academic year. Also serving to extend the implementation period of the practicum slightly was the unexpected provision of an afternoon designated building-wide for individual computer use by faculty. In recognition of the necessity of time to use the computer as a significant component enabling enhancement of computer literacy fostered by the activities of the writer's practicum, a weekly faculty meeting was canceled at the writer's school. Teachers were to use this hour to implement their personal use of the computer based upon previous support from the writer. Evaluation of this phase of the implementation of the practicum was to be made using a checklist (Appendix E).

The building-wide computer exploration time for teachers was an interesting experience for all concerned. It was the writer's goal that each of the 14 teachers in the writer's school would use the computer in a way that demonstrated their present use of technology in their classroom. A specific

opportunity was provided for teachers to use the computer: a weekly faculty meeting was cancelled to specifically allow time for teachers to spend with the computer in their classroom. Prior to this scheduled computer time, the writer met with each faculty member to determine how they wished to use this time with the computer and what the writer could do to provide software or otherwise facilitate a productive 45 minute time block for teacher computer use. Prior to the scheduled computer time, the writer provided individual inservice sessions with three teachers in need of specific orientation to particular programs. All teachers indicated to the writer their intended use of this time with the computer. The writer provided requested software and temporary back-up copies of programs as necessary so that all faculty could simultaneously utilize the program of their choice during the time for independent computer use. During this time block set aside by the writer's supervisor for building-wide computer exploration, teachers' time was used to create greeting cards, print gummed labels, design puzzles and word finds for student use, explore a new word-processing program, print a graphic of a map, and utilize a gradebook program. Although the contractual school day terminates at 3:00 PM, several persons involved in the computer exploration time remained involved with their exploratory pursuits beyond "quitting time." The writer and media specialist served as resource persons for the teachers as they used the hour specifically set aside for teachers to use the computer. Several teachers and other faculty members worked as a group to generate labels using the computer. Other teachers teamed as pairs to work. Individuals were also engaged in use of the computer. The school custodian remarked to the writer about the fact that everyone in the school was using a computer. The writer was directed to classrooms by the school intercom system as teachers buzzed the office to request assistance. The custodian

observed the writer's excursions in the building and suggested the purchase of a beeper. It was a busy hour. Several teachers indicated verbally that they wished to have more time designated specifically for their use and exploration of the computer.

Following all of the above implementation strategies, a survey instrument was used to assess the implementation of the practicum at the writer's school in terms of faculty computer literacy (Appendix I).

Chapter V

RESULTS, DISCUSSION AND RECOMMENDATIONS

Results

The problem addressed by the practicum was that the computer literacy of teachers and students varied from grade to grade and classroom to classroom, as did the amount of use of the computer. Preliminary strategies included a suvey of faculty compter literacy and related issues (Tables 1, 2, & 3) and distribution of a survey to families at the writer's school (Appendix A). Solution strategies included examination of K-5 computer literacy curriculums in districts near the writer's school district, development of a grade level specific computer literacy curriculum, individual computer literacy workshops for teachers at the writers school and provision of "Computer Tips of the Week" during weekly faculty meetings. Other planned components of the solution were identification of in-place uses of the computer and scheduling plans, and an optional workshop presentation by the writer entitled "The One Computer Classroom."

Outcome #1. The first expected outcome of the practicum was the adoption of a grade-level specific computer literacy curriculum with

performance objectives. The staff, acting as a committee of the whole, acted upon the curriculum which was presented at a faculty meeting in November of 1991. The each faculty member received a copy of the document (Appendix B). Minor changes were suggested in terminology; a revised copy was accepted by the faculty at the writer's school without objection.

Outcome #2. The second outcome was related very closely to the first: teachers were to have access to a grade-level appropriate computer literacy curriculum. Copies of the document were distributed to all classroom teachers and this outcome was measured using a checklist (Appendix C). The results are presented in the following table.

Table 5
Receipt of Computer Curriculum

Grade Level	Teachers	Recipients
Kindergarten	2	2
First	2	2
Second	3	3
Third	2	2
Fourth	3	3
Fifth	2	2

All teachers at the writer's school received a copy of the computer literacy curriculum and initialed the checklist to indicate receipt of this document.

Outcome #3. The third outcome for the practicum was that the teachers would experience hands-on activities using the computer to enable them to teach the computer literacy curriculum. The measurement of this outcome was through an evaluation form (Appendix H) distributed to all participants following an optional inservice workshop entitled "The One Computer Classroom." Participants also indicated their attendance using a checklist; a copy of this completed document is included in this report (Appendix P). Seventeen evaluation forms were completed by persons attending the

workshop. The inservice was rated "high overall" by 16 of the 17 respondents. Other data from the evaluation form is summarized by the following table.

Table 6
Faculty Inservice Evaluation Results

	High	Medium	Low
Was the presenter knowledgeable?	16	0	1
Was the information useful to you?	14	2	1
Was the inservice objective reached?	15	1	1
Did this inservice fulfill a need?	14	2	1
Was the experience useful to you?	14	2	1
	Yes	No	Blank
Was information received:			
--new to you?	11	2	4
--not new, but worthy of review?	9	0	8
Will participation in this inservice bring about a positive behavioral change:			
--in you?	17	0	0
--in students for whom you are responsible?	17	0	0
Would you like this inservice expanded or continued?	15	2	

Note: n=17 faculty members responding to survey

Outcome #4. The fourth goal of the practicum was that teachers would successfully use the computer for a project of their choice. These results were measured using a checklist (Appendix E) and are as follows.

Table 7

Teacher's Computer Exploration and Products

Teacher	Software Used	Product Produced
1. Kindergarten	Print Shop Lover's Utilities	labels
2. Kindergarten	Print Shop Lover's Utilities	labels
3. First Grade	Print Shop Lover's Utilities	labels
4. First Grade	Puzzles & Posters	puzzle
5. Second Grade	Print Shop Lover's Utilities	labels
6. Second Grade	Print Shop	greeting card
7. Second Grade	Magic Slate	data files
8. Third Grade	Gradebook	data entered
9. Third Grade	World Geograph	printout of map
10. Fourth Grade	Appleworks	data files
11.Fourth Grade	various Mecc programs	group lesson
12. Fourth Grade	Gradebook	data entered
13. Fifth Grade	Print Shop	banner

Other participants included the guidance counselor, primary resource teacher and custodian who explored the use of the computer to print labels.

Outcome #5. The fifth anticipated outcome of the writer's practicum was that teachers would move beyond their level of computer literacy as measured prior to the practicum through hands-on activities using the computer. Two methods of measurement were used to evaluate the success of this outcome. First, a checklist was used to identify the product produced during the teachers' exploration of the computer (Appendix E) and presented in table 6. The second measurement tool for this practicum outcome was a final evaluation form covering the practicum distributed to the participating faculty (Appendix I). The evaluation form was distributed following the independent exploration time set aside for teachers on January 29, 1992. This evaluation form was designed to serve as a post-test for workshop participants and was designed to measure changes in the perceptions of the teachers' skills and abilities in computer use. The pre-test data was presented

in Table 2 of this report. It is re-stated here for the purpose of comparison.

Table 8
Skills and Abilities of Classroom Teachers: Pre & Post Practicum

	Pre-Practicum		Post Practicum	
Skill	Yes	No	Yes	No
setting configuration	2	10	4	12
booting system	8	4	12	0
loading program	11	1	12	0
keyboard arrangement	11	1	11	1
command key use	11	1	11	1
printer use	8	4	12	0
to turn on computer	12	0	12	0
to turn off computer	12	0	12	0
to turn off printer	9	3	12	0
prepare printer to print	7	5	12	0
word processing	8	4	11	1
definitions of computer terminology	5	7	8	4
identification of system components	6	6	8	4
formatting a blank disk	4	8	8	4
making a back-up copy of a disk	4	8	8	4
identifying functions of system parts	4	8	9	3
care of equipment	11	1	12	0
care of software	10	2	12	0

Note: n = 12 teachers responding to pre-practicum and post-practicum surveys

The results of the post-practicum survey indicate a teacher-perceived increase in teacher computer skills. All areas with the exception of setting configuration reflect perceived growth. Because setting disk configuration was not a part of individual or group inservice by the writer, this is not an unexpected result. Clearly, the teachers in the writer's school indicate a positive change in computer literacy skills.

Unexpected Outcome

The inservice presentation by the writer was entitled "The One Computer Classroom." This demonstraton workshop was presented to the faculty on a contractual teacher workday between semesters (Appendix F, Appendix N). This inservice was immediately preceeded by a faculty meeting during which a report to teachers was made that the school had some funds

available to be spent as the faculty was to determine. Because the writer's school does not receive funding from federal Chapter monies and does not have student populations to generate specific entitlement dollars, this money was the cumulative result of profits saved from sale of school pictures, T-shirts, magazine sales, and other in-house fundraisers.

Immediately following the conclusion of the workshop demonstration of the use of the RF modulator and the school's 25" television as a monitor for whole-class lessons, the media specialist indicated that this could be a direction for the spending of the available funds. The teachers quickly decided as a committee of the whole to investigate the purchase of a 25" television set and RF modulator so every classroom at the school would have immediate access to this technology. The principal readily agreed to pursue this purchase. Within two weeks of the writer's demonstration, a dozen 25" color television sets with remote controls were purchased @ $299.99 and delivered to the school by a local warehouse merchandiser. Over $500 was spent on RF modulators, RCA cables, Y connectors, and quick-change adaptors to facilitate an efficient switch between use of the television set with the computer and that of a VCR. Upon completion of the implementation period of the practicum, televisons sets, RF modulators, and related cables were installed and operational in all 14 general education classrooms and a portable facility shared by specific learning disabilities, reading, and speech teachers. The media center retained the original RF modulator procured by the writer from a teacher school district mini-grant. This equipment, when coupled with media center televisons reserved for cable television hookup or CD player, will enable the media center computers to be used for whole-group presentations.

Discussion

The writer thoroughly enjoyed the implementation phase of this practicum. The writer's involvement in a "one computer classroom" provided a strong element of ownership in the problem targeted by the practicum. First and foremost in the writer's mind is the enthusiastic cooperation with which her efforts were met and the incredible change that was made in the workplace due to the inservice presentation which was part of the practicum. The significant expenditure involved in equipment for each classroom was an unexpected outcome that far overshadowed the anticipated results of the practicum.

The technology related to the use of a televison set as a computer monitor for whole-class lessons was not foreign to the school prior to the implementation period. This equipment was used by the writer occasionally and by one other classroom teacher. Its use involved signing up for use of the television set which was transported to the classroom via rolling cart. The teacher then had to unhook the VRC connection, un-box the RF modulator, attach the cable to the modulator and one to the computer, and attach both television and RF modulator to power outlets. When the lesson was complete (and the specified sign-up period for use of the television/VCR unit was over), all cables and connections had to be disconnected and reattached for return of the unit to the library for the next user. It is not surprising to the writer that the faculty was reticent about checking out the equipment for a computer lesson; it did take a major effort to implement its use in a classroom which was only a temporary setup.

The instant accessability of this technology plus the various uses immediately implemented by the faculty have been enthusastically embraced by the faculty although the potential is in its infancy. Snyder (1991) speaks to

the use of the computer as an electronic chalkboard. The writer has observed and used this technology in language arts lessons, social studies projects, and reading lessons. This equipment has facilitated introducing programs to students before allowing individuals to work and has been used to model the concept of revision of writing as part of the process approach to teaching writing. One very successfully utilized program for whole-class lessons is The Children's Writing and Publishing Center (Creative Pursuits, 1990). This word processing program provides a variety of fonts clearly presented using the television as a monitor. Another advantage to using the computer as an electronic chalkboard is the ability to print out what was presented and, using duplicating equipment, quickly provide each student with a copy of what was presented as a study guide or a revision task. Although the writer was conversant with the use of the RF modulator/television equipment, the instant access has enhanced her literacy and has enabled her to further lead teachers to use this technology.

Although they seem to pale by comparison with the unexpected outcomes of the practicum, the expected outcomes of the practicum were successfully met. The grade-level specific curriculum was adopted as prescribed and copies were received by all teachers. This element of the practicum was not pursued beyond the writing, approval and receipt of this document (Appendix B). The writer's work in this portion of the practicum attempted to meld the concept of categories (Eriksen, 1989), knowledge areas (Berry et al, 1983) and strands of literacy (Hunter, 1983). Therefore, the curriculum presented by the writer (Appendix B) was organized into three topics for each grade level: vocabulary, skill, and knowledge. Each topic was designed to be sequential and dependent upon the previous grade level. The vocabulary list for each grade level was written redundantly to indicate to each

grade level teacher the expected prior vocabulary. This expected outcome of the practicum did not go beyond receipt of the curriculum to the measured implementation of it.

The outcome to enable teachers to use the computer rather than experience meetings about computers was successful. The writer wishes that teachers had more time (such as that which was a result of the implementation) for specifically spending time with the computer for the teacher's benefit. The building custodian remarked to the writer that, on the day designated for independent computer exploration, he wondered what was happening because all of the teachers were sitting at their computers! That was the plan. He also remarked that the writer was running up and down the hall and that she needed a beeper! This indicated that the writer's intent for this portion of the implentation was met.

The fourth expected outcome of the practicum was that the teachers would use the computer for a project of their choice. This was a valuable expectation of the practicum implementation because specific time was provided for teachers to use for this purpose. As with so much in life, there was so much to do and so little time. The writer is sure that teachers would benefit from many more such opportunities to use the computer for their own purposes. Beyond making labels, setting up a gradebook program, producing a greeting card or other such projects, teachers need time to explore programs for individual or whole-class lessons, set up programs to monitor individual progress (such as the teacher-access menu provides with MECC programs available to teachers at the writer's school due to a district software contract), and to use the computer for personal projects such as correspondence.

The fifth expected outcome of the practicum was related to the personal growth of computer literacy for teachers at the writer's school. Measured by a

survey instrument as a pre- and post-test, the writer was unable to effectively measure cognitive growth in this area. The measurement instrument does indicate the pre- and post-practicum perceptions of the participants. To adequately measure the computer literacy, skills, and abilities of the teachers would require a standardized test. Not only is this an unpopular possibility, but such testing would require a major shift in teacher education and related requirements. The writer's results in this regard are but an indicator at the conclusion of the implementation about how teachers rate their knowledge and perhaps an indication of an increase in confidence due to more experience and familiarity with the concepts in the grade-level specific curriculum as well as use of the computer in their classroom.

Recommendations

The writer realizes that this practicum was instrumental in opening the door to the implementation of new technology in the classroom. Because of this practicum, each classroom has the potential for its own VCR, cable outlet, and ultimately, a closed circuit television system. The writer's school also has the potential to have all building computers linked as a network. It is the writer's recommendation that this school and others on the brink of technological restructuring continue to build the knowledge and enthusiasm of the faculty as equipment and capabilities are increased. The writer will continue to foster individual and collective technological growth at her school and to follow through with the requests of faculty for assistance.

In terms of recommendations to the larger readership of this practicum report, the writer specifically indicates the following as appropriate recommendations for further study in light of this work:

1. Further evaluation of the grade-level specific computer literacy curriculum should be made. This could include the grade-level appropriateness of the vocabulary, knowledge, and skills of the curriculum for each grade level with appropriate measurement tools.

2. The adoption and implementation of the writer's grade-level specific curriculum could include a specific staff-training component. Measurement tools for student performance and related criteria could be developed.

3. The enthusiastic response from teachers formally and informally to the writer indicate the worthiness of pursuit of more time for independent exploration and computer use by faculty members. The writer's experience indicates that Turkle's emphasis (1986) upon teacher's direct work with the computer as an educational priority for change in computer use is a prerequisite for implementation of a computer literacy curriculum.

4. The writer would like to see the results of this practicum applied when state literacy objectives are legislated. Specifically, skills should be identified for specific grade levels and attention given to sequencing and appropriate expectations for each grade level. The writer wishes that the work of Baumbach et al. (1987) was grade-level specific in its discussion of minimal competencies.

Dissemination

The writer plans to disseminate the results in several ways. These include networking, workshop demonstrations, and publication.

As the practicum progressed, the writer's computer literacy was enhanced. The writer purchased a modem for home use and became active on

several Bulletin Board Services (BBS), including two national boards affiliated with education. The writer plans to continue discussions on these Boards, specifically her membership in conferences dealing with technology in the classroom and the exchange of ideas. The writer expects to continue to network via the BBS and to impart the benefits of use of an RF Modulator and television as a monitor for whole-class lessons.

Dissemination of the writer's work may also be shared via a regional organization whose purpose is to foster excellence in mathematics and technological education. The writer responded to a recent survey of classroom teachers and indicated willingness to share her knowledge of the RF Modulator/television screen technology with Apple //e and IIGS computers with selected software as an inservice presenter for an established Center of Excellence in Mathematics, Science, Computers and Technology.

The writer plans to log and document the present and future uses of the RF Modulator/Television set for creative whole-class lessons. The writer sees potential for publication of these ideas to further the work of teachers everywhere in "one computer classrooms" (Snyder, 1991). The publication of a book for teachers specifically documenting and directing the creative use of the computer for whole-class lessons is anticipated as an eventuality by the writer. The writer will also share the practicum work with Tom Snyder Productions (1991) for possible inclusion in a future catalog.

The writer also anticipates the acceptance of this report for inclusion in the ERIC document information retrieval system.

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APPENDIX A
HOME COMPUTER SURVEY

Home Computer Survey
(to be placed on school letterhead)

Dear Parents,

The following computer survey is being sent to families with children attending our school. Your help in completing the survey will assist in evaluating instructional needs in the area of computer literacy at school.

Thank you very much for your assistance. Please return the completed survey to school via your child.

Sincerely,

Computer Survey

1. Do you have a computer at home? _____
2. If so, what kind? _____

   Compatibility (Apple or IBM):
3. Who uses the computer in the home? _____
4. How is the computer used by adults? (Please check)

   ____playing games ____word processing
   ____educational drill ____basic programming
   ____graphics ____data base
   ____home finance ____other: _____
5. Is the computer used by children in your home? _____
6. Number of children using the home computer? _____
7. How is the computer used by children? (check)

   ____playing games ____word processing
   ____educational drill ____basic programming
   ____graphics ____data base
   ____home finance other: _____

8. Does your child have access to a computer through your workplace? _____

   Compatibility: IBM APPLE

APPENDIX B
GRADE LEVEL SPECIFIC COMPUTER CURRICULUM

Grade Level Specific Computer Curriculum

Note: Vocabulary items in parenthesis ( ) are review terms from previous grade levels.

KINDERGARTEN

Vocabulary: computer, printer, keyboard, disk

Skills: Touch the keyboard with adult supervision to use a program in a guided learning activity.

Knowledge: A computer is a tool with different uses.
Computers play games and do other things.
Computers are used by people to do work.

FIRST GRADE

Vocabulary: (computer, printer keyboard, disk) monitor, drive, program, return, enter

Skills: type name when requested by a program, press return
input information using keyboard to respond to program (numbers, letters, and press return

Knowledge: care of the computer
care of disks

SECOND GRADE

Vocabulary: (computer, monitor, printer, drive, keyboard, disk, program, return, enter) ribbon, load, boot, menu, sleeve for disk, computer system, mouse.

Skills: type a sentence using word processing program
respond to educational drill and games programs using the keyboard
identify correct and incorrect treatment of computer hardware
identify correct and incorrect treatment of disks

Knowledge: Computers must have programs in order to do tasks.
Computer programs make it possible for computers to word process (act like a typewriter), print pictures (graphics), and remember information (such as addresses and facts).
A printer is used to make a copy of the work done on a computer.
A disk is used to save information put into the computer using the keyboard.

BEST COPY AVAILABLE

A menu is the part of the computer software that gives the computer user choices of things to do when using a program.

THIRD GRADE

Vocabulary: (computer, monitor, printer, drive, keyboard, disk, program, ribbon, load, boot, return, enter, computer system, mouse, sleeve for disk, menu) word processing, graphics, save, software, hardware

Skills: Increased ability to type student writings using word processing programs.
Ability to use a graphics program to produce a printed greeting card or banner from the program menu with adult supervision

Knowledge: Two popular kinds of computers are IBM and Apple.
All IBM computers can use programs made for IBM computers; Apple computers cannot use IBM programs. Apple computers use programs written for Apple computers.
The mouse is an alternative input device for the keyboard.
Disks save information. If the computer is turned off without saving, all work done during the time that the computer is turned on is "forgotten" or lost.
Computers will not save information without being commanded to "save"
Software refers to programs on disks; hardware means the equipment that can be seen and touched, such as the keyboard, monitor, and printer.
Computers store information using memory.

FOURTH GRADE

Vocabulary: (computer, monitor, printer, drive, keyboard,disk, program, ribbon, load, boot, return, enter, word processing, graphics, sleeve for disk, computer system, mouse, save, software, hardware, menu) hardcopy, input, output, storage, memory, 5.25 disk, 3.5 disk, hard drive

Skills: To use the computer to produce a final copy of a student writing independently printing using the "print" option for a menu with proper preparation of the program and printer by the teacher.
To use the computer to print a card or banner using the "print" option from a menu with proper preparation of the program and printer by the teacher.

Knowledge: A hardcopy is a copy of work made by the printer.
A hard drive is a part of the computer that "remembers" information

without the use of a program disk.

A computer with a hard drive with programs stored on it will not have to use a separate program disk when turned on in order to do work.

FIFTH GRADE

Vocabulary: (computer, monitor, printer, drive, keyboard, disk, program, ribbon, load, boot, return, enter, word processing, graphics, sleeve for disk, computer system, mouse, save, hardcopy, software, hardware, input, output, storage, menu, memory, 5.25 disk, 3.5 disk, hard drive) commands, data base, compatibility, back-up disk, write-protected, legal, illegal, copyright, programming, Logo

Skills: Continued use of computer for word processing activities and products using graphics

Identification of appropriate and inappropriate uses for the computer

Identification of legal and illegal issues concerning computers and software

Use of the computer as a data base such as those available from the district Math office and related MECC contract

Knowledge: A database is stored information that the computer can use to list facts for the user.

Compatibility means the ability of computers to use software from the same type of computers

Back-up disks are copies of program disks (5.25 or 3.5 disks) that are kept only in case the original program disk is damaged and cannot be used.

Programs on write-protected disks cannot be changed while being used. The notch on the disk is covered by a sticker to make it impossible for the disk to be "written on" by the computer while it is being used.

There are legal and illegal copies of disks.

Programming is the writing of instructions to the computer using special language.

Logo is one example of a programming language. It is easy to use and can be successfully used by children and adults to draw geometric shapes and other things.

APPENDIX C

CHECKLIST: RECEIPT OF GRADE-LEVEL SPECIFIC CURRICULUM

Checklist:

Receipt of Grade-Level Specific Curriculum

Please initial to indicate receipt of a copy of the computer literacy curriculum adopted by the School Improvement Committee / Onward to Excellence Team.

Kindergarten _____ _____

First Grade _____ _____

Second Grade _____ _____ _____

Third Grade _____ _____

Fourth Grade _____ _____ _____

Fifth Grade _____ _____

APPENDIX D

CHECKLIST: POSTING OF CLASSROOM COMPUTER USE MANAGEMENT SYSTEM

Checklist:
Posting of Classroom Computer Use Management System

The following checklist was to be used by the writer to identify that a management system is posted in each classroom as well as to collect data about procedures used. This form will indicate the date that the management system was discussed, the teacher's initials, and notes about procedures used.

Kindergarten

First Grade

Second Grade

Third Grade

Fourth Grade

Fifth Grade

APPENDIX E
TEACHER COMPUTER PRODUCT CHECKLIST

Teacher Computer Product Checklist

This form was used to collect data indicating the use of the computer for a specific purpose by each classroom teacher to enhance personal computer literacy.

Teacher	Software Used	Product Produced
1. Kindergarten		
2. Kindergarten		
3. First Grade		
4. First Grade		
5. Second Grade		
6. Second Grade		
7. Second Grade		
8. Third Grade		
9. Third Grade		
10. Fourth Grade		
11. Fourth Grade		
12. Fourth Grade		
13. Fifth Grade		

APPENDIX F

OPTIONAL TEACHER IN SERVICE WORKSHOP CONTENT OUTLINE:

THE ONE COMPUTER CLASSROOM

Optional Teacher Inservice Workshop:
Content Outline
The One Computer Classroom

A. Introduction of the five categories of classroom computer use
   1. One computer and large groups
   2. One computer and small groups
   3. One computer as a lecture tool
   4. The computer as a learning center
   5. One computer as teacher's secretary

B. Demonstration/ overview of school software for each of the above categories of classroom computer use.

C. Teacher work time to return to classroom to review software

D. Whole-group sharing of what was learned, accomplished

APPENDIX G

WORKSHOP PARTICIPATION ATTENDANCE CHECKLIST

Workshop Participation Attendance Checklist

Please initial this sheet to indicate your participation in the optional faculty computer literacy enhancement workshop, January 7, 1992.

Kindergarten _____ _____

First Grade _____ _____

Second Grade _____ _____ _____

Third Grade _____ _____

Fourth Grade _____ _____ _____

Fifth Grade _____ _____

Other: _____

APPENDIX H
IN SERVICE EVALUATION FORM

Inservice Evaluation Form

Circle one to rate: high (1), medium (2), or low (3).

1. In terms of updating knowledge or improving skills, how do you rate this in service overall? 1 2 3

2. In your opinion:
   a. Was the presenter knowledgeable? 1 2 3
   b. Was information received useful to you? 1 2 3
   c. Was the objective of the in service reached? . . 1 2 3
   d. Did this in service fulfill a need? 1 2 3
   e. Was the experience useful to you? 1 2 3
   f. Was information received:
      --new to you? . . . . . Yes No
      --not new but worthy of review? . . . . . Yes No
   g. Will your participation in this in service bring about a positive behavioral change:
      --in you? . . . . . Yes No
      --in students for whom you are responsible? . . Yes No
3. Would you like to see this workshop expanded or continued? . . . . . Yes No
   Comments:

4. How do you feel that this in service could be improved?

APPENDIX I

FACULTY EVALUATION
OF PRACTICUM

Dear Teachers,

Please complete the following. **Check all of the following that you know how to do.**

_____ setting configuration of disk to your system

_____ booting the system

_____ how to load a program

_____ arrangement of the keyboard

_____ use of command keys

_____ use of the printer

_____ how to turn the computer on

_____ how to turn off the computer

_____ how to turn off the printer

_____ preparation of the printer for printing

_____ word processing

_____ definitions of terms such as "boot, peripherals, hardware, CRT"

_____ identification of the parts of the computer system

_____ formatting a blank disk

_____ making a back-up copy

_____ identifying the functions of each part of the computer system

_____ care of equipment

_____ care of software

Thank you very much! This marks the completion of the implementation of my Practicum I, but not the end of my support and help to you in your efforts with the computer!

APPENDIX J

PRINCIPAL'S LETTER ABOUT
TELEVISION SETS/ RF MODULATORS PURCHASE

MONDAY, JANUARY 27, 1992

DEAR PARENTS:

THIS LETTER CONTAINS SOME OF THE MOST IMPORTANT INFORMATION I WILL SEND HOME THIS YEAR. I HOPE EVERY PARENT - MOTHER AND FATHER - WILL TAKE TIME TO READ THIS.

WE PRESENTLY HAVE 290 FAMILIES; AS OF THIS DATE I HAVE RECEIVED 115 SURVEYS, A 40% RETURN. I WILL VERY SHORTLY BE COMPILING THE RESULTS. THE STAFF AND I HAVE READ THEM ALL, AND WE HAVE RESPONDED TO SPECIFIC CONCERNS. RESULTS, WITH SOME THOUGHTS FROM ME, WILL BE SENT TO YOU IN MY NEXT NEWSLETTER. INCLUDED WITH THESE RESULTS WILL BE THOSE FROM THE CHILDREN AND THE TEACHERS.

WE ARE SO EXCITED ABOUT SUTER'S STEADY ADVANCES INTO THE EXCITING AND RAPIDLY CHANGING FIELD OF TECHNOLOGY. WE HAVE JUST PURCHASED 12 25" MAGNAVOX TV SETS WHICH NOW GIVES US A TV IN EVERY CLASSROOM. SHORTLY WE WILL HAVE A RF MODULATOR WITH CABLE THAT WILL ALLOW EACH TEACHER TO HOOK HER CLASSROOM COMPUTER TO HER TV SET. THIS TECHNOLOGY ALLOWS TEACHERS TO EXPAND THEIR TEACHING CAPABILITIES OF COMPUTER PROGRAMS. IT DOES NOT ALLOW US TO WATCH TELEVISION BECAUSE WE DO NOT HAVE ANTENNAS OR CABLE HOOKUPS. THESE PURCHASES ARE POSSIBLE BECAUSE YOU ALL RESPONDED VERY WELL TO OUR MAGAZINE SUBSCRIPTION PROJECT, SCHOOL PICTURES PROJECT, ETC.

I AM PRESENTLY LOOKING AT GRANT POSSIBILITIES, ALONG WITH OTHER FUND-RAISING EFFORTS, THAT WILL HELP US CONTINUE OUR TECHNOLOGY PROGRESS. NEXT YEAR WE HOPE TO BE ABLE TO WIRE OUR SCHOOL FOR CLOSED-CIRCUIT TV. IMAGINE ALL THE TEACHING THAT CAN BE DONE WITH THAT CAPABILITY!!! FOR INSTANCE, I

COULD TEACH GEOGRAPHY VIA TV INSTEAD OF THE PRESENT SYSTEM ON THE INTERCOM; CHILDREN COULD SAY THE PLEDGE ON TV INSTEAD OF OVER THE INTERCOM; STUDENT COUNCIL OFFICERS COULD USE VISUALS TO CLARIFY THEIR PROJECTS OVER TV INSTEAD OF EXPLAINING ON THE INTERCOM; MRS. SNEED'S WONDERFUL LESSONS COULD BE GREATLY ENHANCED THROUGH TV!!

HELP US BY CONTINUING TO SEND DELCHAMPS RECEIPTS (THROUGH FEBRUARY), CAMPBELL SOUP LABELS, AND BY RESPONDING FAVORABLY TO THE PROJECT EXPLAINED ON THE ATTACHED PAPER. IF YOU HAVE ANY QUESTIONS OR ANY SPECIFIC ABILITIES THAT COULD HELP US WITH OUR TECHNOLOGY EFFORTS, PLEASE CALL ME. THANK YOU.

Debbie

DEBBIE REES

APPENDIX K

COMPUTER SURVEY FOR FACULTY

Please check these topics if you taught or reviewed them with your students this year.

____setting configuration of disk to your system
____booting of the system
____how to load a program
____arrangement of the keyboard
____use of command keys
____use of the printer
____how to turn on the computer
____how to turn off the computer
____how to turn off the printer
____preparation of the printer for printing
____word processing
____definitions of terms such as "boot, peripherals, hardware, CRT"
____identification of the parts of the computer system
____formatting a blank disk
____making a back-up copy of a disk
____identifying the functions of each part of the computer system
____care of equipment ____care of software

Please check all of the following that YOU know how to do:

____setting configuration of disk to your system
____booting of the system
____how to load a program
____arrangement of the keyboard
____use of command keys
____use of the printer
____how to turn the computer on
____how to turn off the computer
____how to turn off the printer
____preparation of the printer for printing
____word processing
____definitions of terms such as "boot, peripherals, hardware, CRT"
____identification of the parts of the computer system
____formatting a blank disk
____making a back-up copy
____identifying the functions of each part of the computer system
____care of equipment ____care of disks

Please check all that apply: How do you use the computer in your classroom?

____word processing
____data management
____data base
____drill/ practice: math
____drill/ practice: spelling
____drill/ practice: other subject areas
____simulations
____games

Do you have a specific management system in your room for students to have an opportunity to use the computer? yes no
Do you use parent volunteers with your computer? yes no
Do you turn on the computer every day? yes no
About how many minutes each week does each student get to use the computer? ____minutes
You may make any comments about computers that you wish on the back of this paper (optional). Thank you very much for your input!!

APPENDIX L

COVER LETTER ATTACHED TO
HOME COMPUTER SURVEY

Thursday, October 17, 1991

Dear Parents,

I M P O R T A N T I N F O R M A T I O N

TOMORROW IS THE DEADLINE FOR PURCHASING CLOTHING! WE HAVE FORMS AT SCHOOL IF YOU WANT TO ORDER AT THE LAST MINUTE.

INDIVIDUAL SCHOOL PICTURES WILL BE TAKEN THURSDAY, OCTOBER 24TH. IF YOU WANT YOUR PRESCHOOL CHILDREN TO HAVE THEIR PICTURES TAKEN PLEASE BE AT SCHOOL BY 8:00 A.M. PLEASE SEND YOUR PICTURE MONEY WITH EACH CHILD - DO NOT COMBINE YOUR CHILDREN'S ORDERS IN THE SAME CHECK.

ATTACHED TO THIS LETTER IS A FORM THAT I HOPE EACH OF YOU WILL FILL OUT AND RETURN. PART OF MRS. BURMEISTER'S DOCTORAL STUDIES INVOLVES LOOKING VERY CAREFULLY AT OUR COMPUTER CURRICULUM AT . THE ATTACHED INFORMATION WILL HELP US IN OUR OVERALL ASSESSMENT OF HOW BEST TO DELIVER COMPUTER INSTRUCTION TO YOUR CHILDREN.

THANK FOR YOUR COOPERATION.

Debbie

Debbie Rees

P.S. PLEASE REMEMBER YOUR CHILDREN'S REFLECTIONS' PROJECTS - "EXPLORING NEW BEGINNINGS" - DUE THURSDAY, NOVEMBER 14, 1991

APPENDIX M

FACULTY HANDOUT:
CURRENT USE OF CLASSROOM COMPUTERS

Computer Use

--group for each day
--pairs
--parent: child
--name rotation plan

Uses for students:

drill, practice, remediation, type spelling words, games, typing of writings, stationery

Uses for teachers:

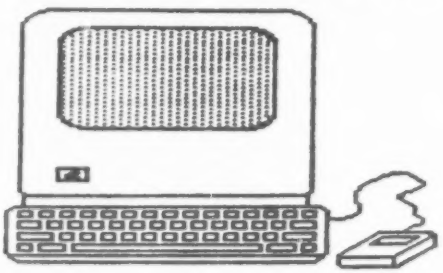
prepare tests, letters home, and homework; make cards, forms, name tags, banners

APPENDIX N

INSERVICE PROGRAM: THE ONE COMPUTER CLASSROOM
(COVER & CONTENTS)

The One Computer Classroom

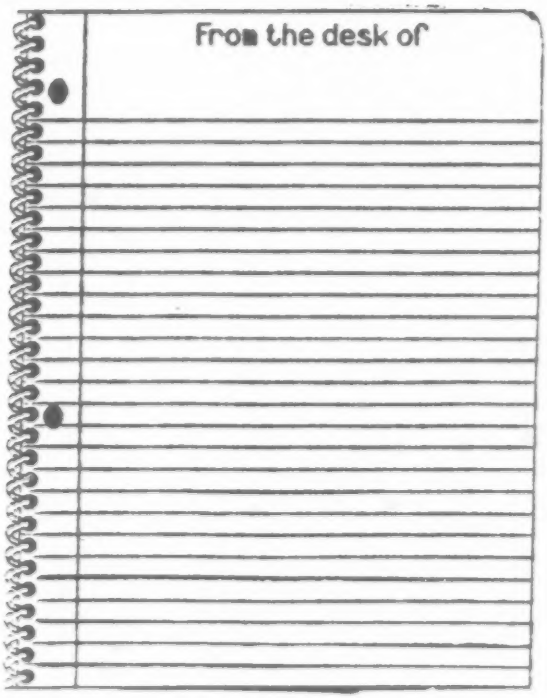
An Inservice Workshop



Marsha Burmeister, M.A., M.Ed.
Doctoral Candidate
Nova University
January 7, 1991

(program cover)

I. Introduction
II. Current Use (handout)
III. Five categories of classroom computer use
  1. One computer: large groups
  2. One computer: small groups
  3. One computer: lecture tool
  4. One computer: learning center
  5. One computer: teacher's secretary
IV. Demonstration and overview of school software in above categories
V. Goal for January 15, 1992
VI. Goal for January 29, 1992



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Organization: NOVA UNIVERSITY PRACTICUM REPORT

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